

that it was almost impossible to distinguish it from *Peronospora*.

As regards the unfortunate criticism of Montagne and Berkeley as to the size of the oospores De Bary effectually refutes himself.

WORTHINGTON G. SMITH

SCIENCE IN LEEDS

THE Annual Meeting of donors and subscribers to the Yorkshire College of Science was held in Leeds last Friday. Financially the College seems to be fairly prosperous. The subscriptions promised prior to the inauguration amounted to 28,000*l.*, and of the special fund of 10,000*l.* started by Sir Andrew Fairbairn's conditional offer of a second donation of 1,000*l.*, about 8,000*l.* have been raised. The Council are most anxious that this should be completed without delay. The College will also participate yearly in the proceeds of William Akroyd's Foundation. Of the present condition of the Yorkshire College as regards efficiency, the following communication from Mr. G. T. Bettany will afford a fair idea:—

A recent visit to Leeds enabled me to inquire into the working of the Yorkshire College of Science, which has now been in existence for nearly two years. In the building which has been temporarily adapted to the purposes of the College, I found abundant evidence of labour and study on the part of both professors and students. The attendance of seventy-five day and more than two hundred afternoon and evening students during the present session shows that the advantages offered by the College are becoming widely appreciated. Although youths are admitted at the age of fourteen, most of the students are much older; I was informed that the average age was a year and a half greater than at Owens College. The chemical department has the lion's share of accommodation; the lecture-room is large and good, and the laboratory would allow of forty students working at the same time. There have been few vacant benches during the past term. Prof. Thorpe has a room fitted up as a museum and reference library, and has also a private laboratory. A considerable amount of work is done in the department of mathematics and physics, but physical teaching suffers from want of space. Practical work can only be carried on in Prof. Rücker's private room. Geology has been fairly attended, though the day class is but small at present. Prof. Green is forming most instructive series of rock-specimens, illustrating stratigraphical geology, volcanic phenomena, and transitions in metamorphism. Mr. Miall's biological lectures have resulted in some very good work. He has prepared a large number of dissections for demonstration, including a series illustrating Prof. Rolleston's "Forms of Animal Life;" practical work has been undertaken by several students, including ladies, one of whom gained the highest place in an examination at the end of last term. Finally, the instruction on textile industries, under Mr. Beaumont, has been made scientific in many respects, especially in relation to the theory of colouring.

It can hardly be considered a misfortune that the College has been started in temporary buildings; for by means of its present effort science will become more widely appreciated, and much larger donations will come to hand than those already received; and the construction of the permanent college buildings cannot fail to be advantaged by the experience now being gained by the professors. It is to be hoped that many wealthy Yorkshire manufacturers who have at present given little or nothing to the College will be induced to follow the example of men in other localities, and liberally support a system of teaching which will be of great intellectual and material benefit to Yorkshire. I was struck with the large amount of work undertaken by the professors. When more prosperous times come, it will be for the

good of the College not to exact so much work from them as their zeal is now leading them to perform.

The Leeds Philosophical Museum is becoming yet more interesting under the care of Mr. Miall, who has worthily succeeded the late Mr. Denny. The whole of the Museum is gradually being arranged in the most educative manner, and very great progress has been made. The casual visitor cannot fail to be instructed as well as interested, which can hardly be said of many more pretentious museums. Brief and clear printed descriptions or explanations abound, showing the particular interest of a specimen, or giving the general characters of a class of animals or of a geological formation. If an additional skilled curator could be appointed, who should relieve Mr. Miall from the care of several departments, the Leeds Museum would advance still more rapidly than at present, and would soon be worthy of any provincial college.

THE LATE SIR WILLIAM WILDE

SIR WILLIAM ROBERT WILLS WILDE, M.D., &c., was born in Castlereagh, county of Roscommon in Ireland, in the year 1814, and he died at his residence in Dublin on the 19th instant. He was educated at the Royal School at Banagher and at the Diocesan School at Elphin; when scarcely eighteen years of age he was bound apprentice, according to the practice of those days, to the well-known surgeon, Abraham Colles, and he acquired his professional knowledge from such men as the Cramptons, Marsh, Wilmot, and Cusack. Early in 1837 he became a Licentiate of the Royal College of Surgeons in Ireland, and shortly after he resolved to devote himself to ophthalmic surgery, in which he attained a position of the highest eminence.

However distinguished as an oculist, however renowned as a writer on statistics, in these columns we lament in his decease the departure from among us of one who, as an earnest, devoted, and painstaking student of the early history of the Irish races, has left in his writings on this subject a great and an enduring monument.

Sir W. Wilde was elected a member of the Royal Irish Academy in June, 1839, having previously read two papers before the Academy, which were published in abstract in their *Proceedings*, and exhibited a collection of ancient spear-heads found in his native country. At this time the Academy had no museum (the Underwood purchase was not arranged), but in the same month that Wilde was elected, Prof. McCullagh munificently presented them with the Cross of Cong, "in order that he might contribute to the formation of a national collection, the want of which was regarded by Sir Walter Scott as a disgrace to a country which, like Ireland, so abounded in valuable remains." This noble gift bore speedy fruit, and meeting after meeting witnessed the presentation of donations, many of which were from time to time described by Wilde.

In 1855 Wilde was elected member of the Council of the Academy, and Secretary of Foreign Correspondence in 1857. In 1852 the Academy had moved to the premises that they at present occupy, and the Council took steps to have a catalogue of their museum made. The task was entrusted to Dr. Petrie. The resolution of the Council would seem not to have been carried into effect, and after some years of anxiety the Council and the Academy were but too happy, in March, 1857, to accept Wilde's liberal proposal to arrange and catalogue their museum. The energy that he brought to bear on this task may be judged from the fact that Part I. was ready in the month of August in the same year, when the British Association met for a second time in Dublin. Part II. was published in 1860. Part III., concluding Vol. I., in 1863. Part I. of Vol. II. had been published in the previous year. Part II. of this volume, although in great part ready; was never printed; let us add that the best

tribute of respect that the Academy could pay to Wilde's memory would be to complete this work. Few know the hours that were stolen from professional work, from the enjoyment of social life, and from much-needed rest, during the years that were engaged in this work. Despite the criticisms of some who knew little of what they criticised, this catalogue will always remain as a testimony to the author's energy and ability; already has it proclaimed far and wide what a storehouse of treasure exists under the Academy's roof. Sir William Wilde's many good qualities will keep his memory alive in the hearts of those who knew him, and when these are dead and gone it will still and for ever hover around the collection of the antiquities of the Royal Irish Academy.

MIDDLE-CLASS EDUCATION IN HOLLAND

THE following article on this subject, "from a Correspondent," appeared in the *Times* of Tuesday:—

It is not unfrequently the case that great nations search laboriously for the solution of problems which smaller peoples have completely solved, as one may say, without effort. We old-fashioned English are at present devoting much pains to discover a good system of education for our middle classes, and yet we have only to cross the Channel in order to see in actual work one altogether satisfactory in a country whose manners, traditions, and laws are almost those of our own.

According to the constitution of Holland there are three degrees of education—Primary, Middle, and Superior. As the Primary Education comprehends all schools intended for children from six to twelve years of age, and as the Universities, the Gymnasias, and other establishments where the study of the ancient languages occupies the first place, are considered as belonging to the Superior class, it follows that all educational establishments not included in one or other of these categories are regarded as establishments for middle-class education.

It appears that until the year 1862 the Dutch were no further advanced in respect of this kind of education than we are now. Wishing to put an end to this state of things, the Minister of the Interior (the Home Secretary) of the time, M. Thorbecke, formerly Professor in Leyden University, presented to Parliament a bill, which was passed into law at the beginning of the following year. From the discussions which preceded the adoption of this law, we learn that its object is to insure a suitable education to young people who are not obliged to learn a business before the age of from fourteen to seventeen years, and for whom, although they are not intended to take up University studies, a deeper and wider instruction is necessary than that which can be obtained at the primary school.

Setting out from the principle that youths who quit the primary schools may be divided into two classes—those who are able to devote only two years, and those who can afford to give five years to further study, it was decided that there should be two kinds of middle-class schools, the one to have a two years' course, and the other a course of five years.

The programme of study in the establishments in which the course is one of two years, and which are called Lower Middle-Class Schools, includes, in the first place, the elements of Mathematics, Mechanics, Physics, Chemistry, Natural History, Geography, History, and the Dutch Language, and in addition, Drawing, Gymnastics, and some idea of Political Economy and of Technology for towns, and of Agriculture for the country. The teachers in these establishments are moreover required to devote the evenings to courses for young artisans or agriculturalists who are prevented from taking the courses which are given during the day.

As to the number of these schools, the law requires that each commune whose population exceeds 10,000 shall

establish at its own expense at least one Lower Middle-Class School.

The programme for those schools in which the course is one of five years, and which we may designate Upper Middle Class Schools is of course more extensive. It embraces first the branches included in the Lower Schools, but, as might be expected, this education in the Upper Schools goes much deeper. Then come three foreign languages—French, English, and German. The law requires, moreover, that the pupils should receive some notion of the political institutions of the country and of its statistics, including those of the Colonies. Needless to add, that in a country like Holland the tenure of land must form an integral part of education.

The Higher Schools are naturally those from which the most important results are to be expected, and which, from the English point of view, are best worth careful study. It is simply the truth to say that I have been amazed at what I have seen. It is a very remarkable thing that although no commune is obliged to establish a Higher School—only the State is obliged to maintain five—yet at the present time there is no town having a population of above 15,000 which has not its Higher School in full work. A still more remarkable thing is, that nowhere do the school fees exceed 5*l.* a year. As an Englishman, I was very curious to learn how they were able to give at the rate of 5*l.* a year an education which, in our happier England, can scarcely be obtained at all. This is what I learned. The expenses of a Higher School (not including the maintenance of the building) amount to about 1,750*l.* per annum. Supposing the school to be attended by 100 pupils (a medium estimate), the receipts, under the head of school fees, do not exceed 500*l.* There thus remains a deficit of 1,250*l.*; but the State generally provides a subsidy of 7,000 florins (about 583*l.*), and the town has therefore only to make up the difference by contributing 667*l.* We have supposed the school to be attended by 100 pupils, it is evident that when this number is exceeded, the receipts rise in proportion. This, however, is not always to the advantage of the Communal budget, for it should be known that in Holland a class is not allowed to contain more than thirty pupils, the result being that a greater number necessitates the creation of a double class, and this may require an increase in the number of teachers. Let us note, also, in passing, that the communes which are not able to bear the expense of a complete Higher School are authorised to establish schools of three classes corresponding to the three lower classes of a complete school.

The Communal Councils (town councils) may appoint such teachers as appear to them efficient. It is only necessary that these present certificates of competency and character, and that they have consequently passed the examinations required by the law. There are exempted from these examinations the bearers of certain academic degrees; thus for the mathematical and physical sciences the greater part of the candidates are former students of the Universities. These are generally young doctors of science who have taken a high place. Holland is not slow in showing her gratitude to them.

I have said that in the Higher Schools the school fees, although the law has not fixed a maximum, do not exceed 5*l.* For the Lower Schools the maximum is 1*l.* per annum, but this figure is rarely reached.

It is evident from the above that when a boy of twelve years of age leaves the Primary School and is not immediately obliged to earn money, his father, called in to decide whether or not he shall be sent to a Middle School, has no obstacle to face in the matter of school fees. A foreman or superior workman in a position to keep his son till he is fourteen years of age, can easily pay a shilling a month for school fees; 5*l.* would be an almost insuper-